

High temp. fuel cell stack - with cells series-connected by separator plates and elastic current collectors

Veröffentlichungsnr. (Sek.) DE4016157
Veröffentlichungsdatum : 1990-12-13
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Veröffentlichungsnummer : ☐ DE4016157
Aktenzeichen:
(EPIDOS-INPADOC-normiert) DE19904016157 19900519
Prioritätsaktenzeichen:
(EPIDOS-INPADOC-normiert) CH19890002149 19890608
Klassifikationssymbol (IPC) : H01M2/12; H01M2/20; H01M8/12
Klassifikationssymbol (EC) : H01M8/02, H01M8/02C, H01M8/24B2H
Korrespondierende Patentschriften

Bibliographische Daten

A device, for converting the chemical energy content of a gaseous fuel into electrical energy, includes a stack of series-connected, flat, zirconia solid electrolyte-based, high temp. fuel cells (1,2,3) with current transfer components inserted between adjacent cells. The novelty is that each inserted component consists of a central, electrically conductive, gastight, flat separator plate (4) sandwiched between electrically conductive, elastic current collectors (6,7) having contact points for the separator plate (4) and the adjacent cell electrode (2,3), the contact points being permanently subjected to pressure perpendicular to the plate plane. The periphery of the separator plates and fuel cells is provided with flat insulating spacer frames (9), elastic seals (10) and corresponding gaseous medium feed and discharge systems. The entire stack is held together under pressure perpendicular to the plate plane by elastic ti-rods or stirrups located at the periphery of or outside the fuel cells and separator plates. ADVANTAGE - The device has an extremely high of many fuel cells and good current transfer between cells with minimal losses. and has a design allowing mass prodn.

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